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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,938	02/13/2002	Yue Der Chih	67,200-489	9831

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EXAMINER

BAKER, STEPHEN M

ART UNIT	PAPER NUMBER
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2112

MAIL DATE	DELIVERY MODE
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08/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/075,938	CHIH, YUE DER	
	Examiner	Art Unit	
	Stephen M. Baker	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “respective I/O terminal” associated with “each of said plurality of columns” where the “columns” are “associated with said non-volatile memory” must be shown or the features canceled from the claims. The drawings filed 14 September 2005 do not show any columns and it is not supposed that there is a one-to-one correspondence with the terminals (16) shown and the “columns” of the non-volatile memory (14). No new matter should be entered.

2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:

In paragraph [0044] “share a single column, in a more complicated design” apparently should be “share a single spare column, in a more complicated design”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Reference is hereby made to the objection to the drawings filed 14 September 2005.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 is apparently not a complete sentence.

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 1-20, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,471,478 to Mangan *et al* (hereafter Mangan).

Mangan discloses a flash EEPROM “non-volatile” memory system for storing sector-sized (512-byte) data blocks. Referring to Mangan’s Fig. 3, a typical block (205) includes a data sector portion (207) and an overhead portion (209), both of which extend across all four rows of a block and share common column addresses (col. 5, lines 14-20). Data is preferably read one row at a time (col. 5, lines 28-29). The rows and columns shown in the figures are addressable, thus Mangan’s non-volatile array addressing involves using an “X-address” and a “Y-address” (column 2, lines 24-28). Data transfers between the EEPROM modules and an associated storage controller

occur in eight-byte (64-bit) 'chunks' thus apparently reading 64 bit-columns of a row. Fig. 4 shows the data sector in terms of the chunks, there being 18 chunks in each of the four rows of a 'block' which is a 512-Byte data sector plus 128 Bytes of sector 'overhead' data. A first 'overhead' portion (215) shown by Mangan consists of a stack of chunks designated "Stack 0" which includes spare columns, shown in Mangan's Fig. 5 as column replacement chunk portions (219, 221, 223, 225). Mangan's second overhead portion (217), designated "Stack 1," includes ECC-protected "repairing data", including pointers to up to seven failed sector data bits in the same row, in the form of seven bad bit pointers BBP0-BBP7. Mangan teaches that a plurality of bad column pointers may be included as well (column 8, lines 45-56). Consequently, Mangan's spare columns can be associated with any data columns. Mangan's storage controller (133) requires an "error correction coding circuit", necessarily "enabled" for operation when called for, within. Mangan's interpreting of the overhead data is to "identify and repair defective columns ... associated with said non-volatile memory."

Regarding claims 1-3, 7-13, 15, and 17-20, Mangan's storage controller (133) performs ECC functions (column 4, line 61) and presumably retains the ECC-corrected overhead data bits in internal registers as they are processed, however the circuitry within Mangan's controller is not shown, so Mangan does not show any registers ("volatile latch array") in the storage controller (133) for retaining and interpreting the defect information included in the overhead.

Official Notice is given that using registers (a "volatile latch array") in a controller processor was conventional at the time the invention was made. It would have been

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obvious to a person having ordinary skill in the art at the time the invention was made to implement Mangan's storage controller with logic including a "volatile latch array." Such an implementation would have been obvious because using registers within a controller processor was already conventional.

Regarding claims 4 and 14, Mangan's second overhead portion (217), also includes ECC-protected "repairing data" in the form of a bad block flag (257) and an accompanying replacement block "repair" pointer (261), thus Mangan's memory system apparently supports replacing entire block rows with spare alternative block rows.

Regarding claims 6 and 16, The host computer for Mangan's memory system is presumably initialized to some extent before accessing Mangan's memory system.

Regarding claim 22, the link between Mangan's controller and non-volatile memory array apparently involves sharing between array peripheral logic and the controller (133).

Regarding claim 23, as the entire row of a block is read to obtain sector data with ECC and sector overhead (including "repairing data") with ECC, Mangan's ECC logic is apparently enabled "unconditionally when accessing an information row ... to make certain said repairing data will be correctly obtained."

Response to Arguments

10. Applicant's arguments filed 14 September 2005 have been fully considered but they are not persuasive.

The rejection based on Mangan has been clarified herein in response to applicants' remarks. Judging by the amendments to the drawings and specification, the claimed association between nonvolatile memory array columns and "respective I/O terminals" is a conventional selective coupling arrangement for accessing columns of nonvolatile memory arrays and is met by Mangan. Unless applicant objects in response to this interpretation, the objection to the drawings and the corresponding rejection of the claims under 35 USC 112, 1st paragraph, will not be maintained in the next Office action.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (571) 272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques H. Louis-Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stephen M. Baker
Primary Examiner
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smb

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